<u>WHAT IS CLAIMED IS:</u>

1. An apparatus for receiving data comprising:

an edge processor operative to make decisions using a plurality of edges of a

5   received data stream; and

a communication circuit coupled to the edge processor, said communication

circuit operative to convert communications with the edge processor from a first format

to a second format.

10   2. The apparatus according to claim 1, wherein said first format include uni-

directional signaling.

3. The apparatus according to claim 1, wherein the second format includes

simultaneous bi-directional signaling.

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4. The apparatus according to claim 3, wherein the first format includes uni-

directional signaling.

5. The apparatus according to claim 1, wherein the second format include

20   differential simultaneous bi-directional signaling.

6. The apparatus according to claim 1, wherein said communication circuit

comprises a plurality of current sources, said current sources coupled to form

differential pairs, said differential pairs operative to convert a differential voltage to a

25   differential current, each of said differential pairs operatively coupled to a resistor.

7. The apparatus according to claim 6, wherein said differential voltage is less

than a safe operating voltage of the receiver.

8. An apparatus for converting signaling between a transmitter and an edge-based receiver from unidirectional signaling to differential simultaneous bi-directional signaling comprising:

   a plurality of current sources, said current sources coupled to the edge-based receiver to form differential pairs, said differential pairs operative to convert a plurality of differential voltages to a plurality of differential currents; and

   a plurality of resistors coupled to each of the differential pairs to sum said differential currents to yield a single differential load.

9. The apparatus according to claim 8, wherein said plurality of differential voltages comprise a plurality of differential voltages from a transmitter and a plurality of differential voltages from a receiver, respectively.

10. The apparatus according to claim 6, wherein said differential voltages are less than the safe operating voltage of said receiver.

11. A system for performing signaling between a transmitter and an edge based receiver comprising:

   a transmitter including a current mode driver, a high impedance output and a dual end termination;

   an edge based receiver including an edge processor operative to make decisions using a plurality of edges of a received data stream; and

   a conversion circuit disposed between the edge based receiver and the transmitter, said conversion circuit operative to convert signaling between the transmitter and the receiver from a first format to a second format.

12. The system according to claim 11, wherein said first format includes unidirectional signaling.

13. The system according to claim 11, wherein said second format includes simultaneous bi-directional signaling.

14. The system according to claim 11, wherein said second format includes differential simultaneous bi-directional signaling.

15. The system according to claim 14, wherein said first format includes unidirectional signaling.

16. The system according to claim 15, wherein said conversion circuit operates as a voltage/current subtraction circuit.

17. The system according to claim 15, wherein said conversion circuit further comprises:

a plurality of current sources, said current sources coupled at said edge-based receiver to form differential pairs, said differential pairs operative to convert a plurality of differential voltages to a plurality of differential currents;

a plurality of resistors coupled to each of the differential pairs, said plurality of resistors to sum said differential currents to yield a single differential load.

18. The system according to claim 15, wherein said conversion circuit further comprises:

a plurality of current sources coupled to the edge-based receiver to form a plurality of differential pairs, said plurality of differential pairs operative to convert a plurality of differential voltages to a plurality of differential currents; and

a plurality of resistors coupled to each of the plurality of differential pairs to sum said plurality of differential currents to yield a single differential load.

19. A method for converting a signaling format between a transmitter and an edge-based receiver comprising:

creating a plurality of differential pairs;

converting a plurality of differential voltages in said plurality of differential pairs to a plurality of differential currents;

coupling the plurality of differential currents to an edge-based receiver; and

summing the plurality of differential currents to yield a single differential load.

20. The method according to claim 19, wherein the plurality of differential voltages comprise a plurality of differential voltages from a transmitter and a plurality of differential voltages from an edge-based receiver, respectively.

21. The method according to claim 20, wherein the edge-based receiver comprises an edge processor operative to make decisions using a plurality of edges of a received data stream.

22. A computer readable media having encoded thereon instructions causing a processor to convert a signaling format between a transmitter and an edge-based receiver by:

creating a plurality of differential pairs;

converting a plurality of differential voltages in said plurality of differential pairs to a plurality of differential currents;

coupling the plurality of differential currents to an edge-based receiver; and

summing the plurality of differential currents to yield a single differential load.

23. The computer readable media according to claim 22, wherein the plurality of differential voltages comprise a plurality of differential voltages from a transmitter and a plurality of differential voltages from an edge-based receiver, respectively.

24. The computer readable media according to claim 23, wherein the edge-based receiver comprises an edge processor operative to make decisions using a plurality of edges of a received data stream.